Ordering number : EN 1774E

Monolithic Linear IC



No.1774E

LA7530N

IF Signal Processing (VIF + SIF) Circuit for TV / VCR Use

The LA7530N is an IC containing the VIF section and SIF section on a single chip in the DIP20S package. The use of the small-sized package serves to make VTR tuner units smaller.
As compared with the LA7530, the LA7530N is provided with 2 pins for IF AGC, permitting higher AGC speed. The LA7530N can substitute for the LA7530, but the LA7530 cannot substitute for the LA7530N.
For 9V supply, use the LA7533.

Functions

- VIF section: VIF AMP, VIDEO DET, PEAK IF AGC, B/W NOISE CANCELLER, RF AGC, AFT, VIDEO MUTE.
- SIF section: SIF LIMITER AMP, FM DET, SND MUTE.

Features

- High-gain VIF amp requiring no preamp.
- Higher AGC speed.
- Adjustment-free FM detector because of ceramic discriminator-used quadrature detection.
- Possible to mute video, sound for VTR.
- Small-sized package.
- Minimum number of external parts required.

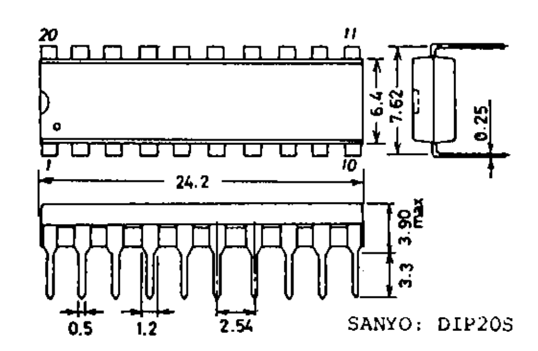
Maximum Ratings at Ta = 25°C

				unit
Maximum Supply Voltage	V_{CC} max		14	V
Flow-out Current	I_{16} max		5	mA
Maximum Applied Voltage	V_{20} max		V_{CC}	V
Allowable Power Dissipation	Pd max	Ta ≦ 40°C	1.1	W
Operating Temperature	Topr		−20 to +70	°C
Storage Temperature	Tstg		−55 to +125	°C

Operating Conditions at Ta = 25°C

			unit
Recommended Supply Voltage	V_{CC}	12	V
Operating Voltage Range	V_{CC} op	9 to 13.2	V

Package Dimensions
(unit : mm)
3021B



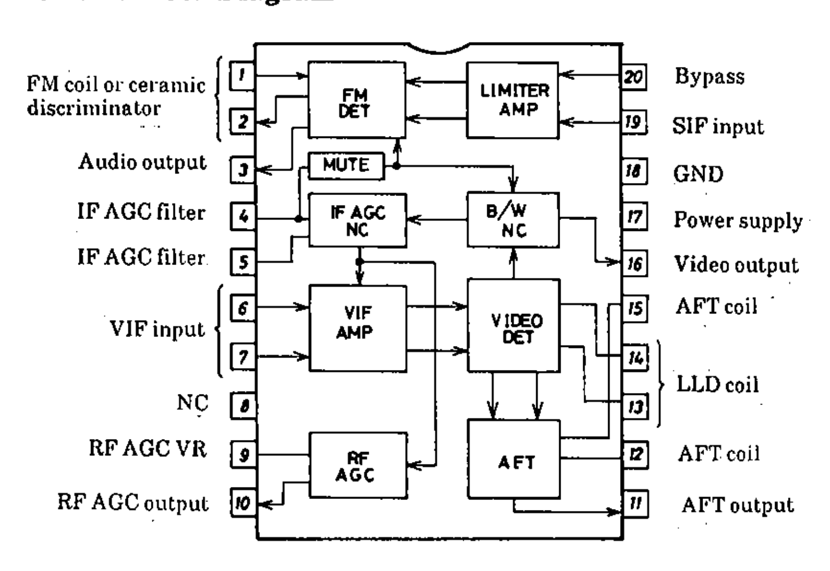
Operating Characteristics at Ta=25°C,V_{CC}=12V,fp=58.75MHz,fs=54.25MHz(VIF), fo=4.5MHz(SIF)

			min	typ	max	unit
Total Circuit Current	I_{17}	DC	47	58	74	mA
Maximum RF AGC Voltage	V_{10H}	DC	8.5	8.9	9.2	V
Minimum RF AGC Voltage	V_{10L}	DC			0.5	V
Quiescent Video OutputVoltage	V_{16}	DC	5.7	6.1	6.5	V
Quiescent AFT Ouptut Voltage	V_{11}	DC	4.5	6.5	7.5	V
Input Sensitivity	Vi	fm=400Hz, 40%AM, Vo=0.8Vp-p	30	36	42	dBμ
AGC Range	GR	fm=400Hz, 40%AM, Vo=0.8Vp-p	57	65		dB
Maximum Allowable Input	Vi max	fm=15kHz, 78%AM, Vo=±1dB	100	200		mVrms
Video Output Amplitude	Vo(VIDEO)	Vi=10mVrms, fm=15kHz, 78%AM	1.9	2.2	2.5	Vp-p
Output S/N	S/N	Vi=10mVrms CW	48	54		dB
Carrier Leak	CL	Vi=100mVrms, fm=15kHz, 78%AM	50	55		dB
Maximum AFT Voltage	V_{11H}	Vi=10mVrms CW SWEEP	11	11.4		V
Minimum AFT Voltage	V_{11L}	Vi=10mVrms CW SWEEP		0.5	1.0	V
AFT Detection Sensitivity	Sf	Vi=10mVrms CW SWEEP	80	110	150	mV/kHz
White Noise Threshold Level	V_{WTH}	Vi=10mVrms SWEEP	6.4	6.8	7.2	V
White Noise Clamp Level	V_{WCL}	Vi=10mVrms SWEEP	4.2	4.6	5.0	V
Black Noise Threshold Level	V_{BTH}	Vi=10mVrms SWEEP	2.1	2.4	2.7	V
Black Noise Clamp Level	V_{BCL}	Vi=10mVrms SWEEP	3.8	4.2	4.6	V
SIF Output Signal Voltage	Vo (SIF)	P/S=20dB	80	140	210	mVrms
Frequency Characteristic	f_C	−3dB	5	7		MHz
Differential Gain	DG	Vi=−27dBm (peak) 87.5% VIDEOMOD		3		%
Differential Phase	DP	Vi=−27dBm (peak) 87.5% VIDEOMOD		3		deg
Input Resistance	Ri		1.0	1.5	2.0	kΩ
Input Capacitance	Ci			3.0	6.0	pF
SIF Limiting Voltage	Vi (lim)	−3dB		200	500	μVrms
Detection Output Voltage	Vo (DET)	Vi=100mVrms,fm=400Hz, Δf=±25kHz	450	680	850	mVrms
Total Harmonic Distortion	THD (DET)	Vi=100mVrms,fm=400Hz, Δf=±25kHz		0.5	1.3	%
AM Rejection	AMR	Vi=100mVrms,fm=400Hz, Δf=±25kHz, 30%AM	50	60		dB

Usage Note : 1. Protective circuits must be inserted when using this IC with lines directly connecting the IC pins to external circuits. (For example, this applies to pins 12 and 15.)

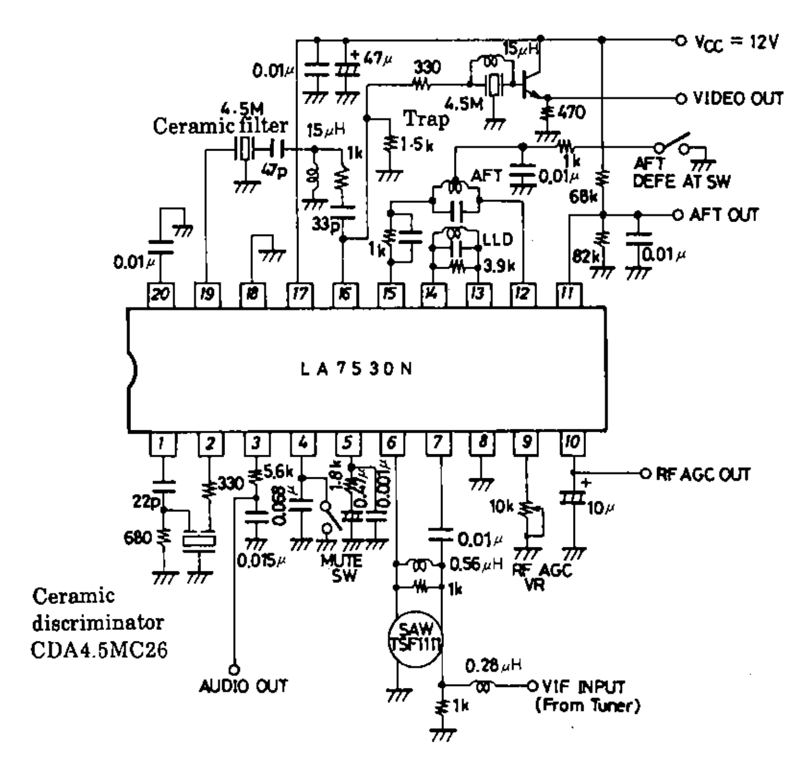
2. A 1000pF capacitor must be connected between either pin 5 and ground or between pin 5 and pin 8 to prevent VIF amplifier oscillation.

Equivalent Circuit Block Diagram



Sample Application Circuit (Japan)

* The LA7530N differs from the LA7530
in the circuit externaly connected to pins 5, 8



Unit (resistance:Ω, capacitance:F)

This catalog provide information as of May , 1995. Specifications and information herein are subject to change without notice.